

What is claimed is:

1. A medical electrical lead, comprising:
 - a lead body including a first portion and a second portion, the first portion including a first lumen extending lengthwise therein and the second portion including a first lumen extending lengthwise therein;
 - a sensor capsule;
 - an adaptor coupled to the lead body and holding the sensor capsule in between the first portion of the lead body and the second portion of the lead body, the adaptor comprising:
 - a proximal end adjacent a first end of the sensor capsule,
 - a distal end adjacent a second end of the sensor capsule,
 - a middle portion extending alongside the sensor capsule, and
 - an open-sided channel extending from the lumen of the first portion of the lead body to the lumen of the second portion of the lead body through the proximal end, the middle portion and the distal portion of the adaptor; and
 - a first conductor extending within the lumen of the first portion of the lead body, the open-sided channel of the adaptor and the lumen of the second portion of the lead body.
2. The lead of claim 1, wherein the first conductor comprises an electrically conductive coiled wire.
3. The lead of claim 2, wherein the coiled wire includes a lumen sized to accommodate a lead delivery wire.
4. The lead of claim 1, wherein the first conductor comprises a cabled bundle of electrically conductive wires.

5. The lead of claim 1, wherein the first conductor comprises an electrically conductive wire and further comprising a low voltage electrode coupled to the conductor along the second portion of the lead body.
6. The lead body of claim 1, wherein the first conductor comprises an electrically conductive wire and further comprising a high voltage electrode coupled to the conductor along the second portion of the lead body.
7. The lead of claim 1, wherein the first conductor comprises a fluid infusion tube.
8. The lead of claim 1, wherein:
 - the first portion of the lead body further includes a second lumen and the second portion of the lead body further includes a second lumen;
 - the adaptor further comprises:
 - a second open-sided channel extending along the middle portion,
 - a proximal lumen within the proximal end including a proximal opening communicating with the second lumen of the first portion of the lead body and extending from the proximal opening to the second open-sided channel, and
 - a distal lumen within the distal end including a distal opening communicating with the second lumen of the second portion of the lead body and extending from the second open-sided channel to the distal opening; and
 - further comprising a second conductor extending within the second lumen of the first portion of the lead body, the proximal lumen of the adaptor, the second open-sided channel of the adaptor, the distal lumen of the adaptor and the second lumen of the second portion of the lead body.
9. The lead of claim 8, wherein:
 - the first portion of the lead body further includes a third lumen;

the second portion of the lead body further includes a third lumen;
the proximal opening of the proximal lumen of the adaptor further communicates with the third lumen of the first portion of the lead body; and
the distal opening of the distal lumen of the adaptor further communicates with the third lumen of the second portion of the lead body.

10. The lead of claim 9, wherein the proximal lumen of the adaptor tapers from the proximal opening toward the second open-sided channel.

11. The lead of claim 9, wherein the distal lumen of the adaptor tapers from the distal opening toward the second open-sided channel.

12. The lead of claim 8, wherein the proximal lumen of the adaptor includes a ramped transition to the second open-sided channel.

13. The lead of claim 8, wherein the distal lumen of the adaptor includes a ramped transition to the second open-sided channel.

14. The lead of claim 8, wherein the first conductor and the second conductor each comprise an electrically conductive wire and further comprising:

a first low voltage electrode coupled to the first conductor along the second portion of the lead body; and

a second low voltage electrode coupled to the second conductor along the second portion of the lead body and spaced apart from the first low voltage electrode.

15. The lead of claim 8, wherein the first conductor and the second conductor each comprise an electrically conductive wire and further comprising:

a low voltage electrode coupled to the first conductor along the second portion of the lead body; and

17

a high voltage electrode coupled to the second conductor along the second portion of the lead body and space apart from the low voltage electrode.

16. The lead of claim 1, wherein the sensor capsule includes a distal projection and the distal end of the adaptor includes a slot interlocking with the distal projection of the sensor capsule.

17. The lead of claim 1, further comprising an outer tube positioned about the adaptor and extending across a junction between the adaptor and the first portion of the lead body and across a junction between the adaptor and the second portion of the lead body.

18. The lead of claim 17, wherein:
the sensor capsule includes an oxygen sensor, the oxygen sensor including a window; and
the outer tube includes an opening approximately aligned with the window.

19. The lead of claim 17, wherein:
the sensor capsule includes a pressure sensor, the pressure sensor including a diaphragm; and
the outer tube includes an opening approximately aligned with the diaphragm.

20. The lead of claim 1, wherein:
the adaptor further comprises a first part and a second part, the first part including the proximal end and the second part including the distal end; and
the first part and the second part are independently formed and subsequently coupled to form the adaptor.

21. The lead of claim 1, further comprising:
a sensor bus extending within a second lumen of the first portion of the lead body to the sensor capsule; and
wherein the adaptor further comprises a proximal lumen extending through the proximal end of the adaptor through which the sensor bus passes;
the sensor capsule includes a housing, a stud extending from the housing and coupled to a first conductor of the sensor bus and a feedthrough pin extending through the housing and coupled to a second conductor of the sensor bus; and
the stud and the feedthrough pin project from a proximal end of the housing, the feedthrough pin being approximately aligned with the proximal lumen of the adaptor.
22. The lead of claim 21, wherein the sensor bus first conductor and the sensor bus second conductor are coaxially arranged.
23. The lead of claim 21, wherein the stud is radially offset from the feedthrough pin.
24. The lead of claim 22, wherein:
the stud is radially offset from the feedthrough pin; and
the sensor bus first conductor includes a dog-leg portion to which the stud is coupled.
25. An medical electrical lead, comprising:
a lead body first portion including a first lumen and a second lumen each extending lengthwise therein;
a lead body second portion including a lumen extending lengthwise therein;
a sensor capsule;

an adaptor coupled to the lead body first portion and the lead body second portion and holding the sensor capsule in between the lead body first portion the lead body second portion, the adaptor comprising:

a proximal end adjacent a first end of the sensor capsule;

a distal end adjacent a second end of the sensor capsule;

a middle portion extending alongside the sensor capsule;

a channel extending through the proximal end, the middle portion and the distal end and including a proximal opening in communication with the first and second lumens of the lead body first portion and a distal opening in communication with the lumen of the lead body second portion; and

a conductor extending within the first lumen of the lead body first portion, the first channel of the adaptor and the lumen of the lead body second portion.

26. The lead of claim 25, wherein the channel tapers from the proximal opening toward the middle portion.

27. The lead of claim 25, further comprising a low voltage electrode coupled to the electrical conductor along the second portion of the lead body.

28. The lead of claim 25, further comprising a high voltage electrode coupled to the electrical conductor along the second portion of the lead body.

29. An medical electrical lead, comprising:

a lead body including a first portion and a second portion;

a sensor capsule including a length; and

an adaptor coupled to the lead body and holding the sensor capsule in between the first portion of the lead body and the second portion of the lead body, the adaptor comprising:

a first part including a proximal end and a proximal lumen, and

a second part including a distal end;
wherein the first part and the second part are independently formed and subsequently coupled to accommodate the length of the sensor capsule.

30. The lead of claim 29, further comprising a conductor and wherein the first portion of the lead body includes a lumen through which the conductor extends;

the second portion of the lead body includes a lumen through which the conductor extends; and

the adaptor further comprises a channel through which the conductor extends, the channel extending alongside the sensor capsule.

31. A method for assembling a medical electrical lead that includes a lead body first portion, a lead body second portion and a sensor capsule positioned in between the lead body first portion and the lead body second portion, the method comprising the steps of:

coupling a sensor bus to the sensor capsule;

coupling an adaptor to the lead body first portion, the adaptor adapted to hold the sensor capsule; and

placing the sensor bus, which extends from the sensor capsule coupling, within a sensor conductor lumen of the lead body first portion through a proximal end of the adaptor.

32. The method of claim 31, further comprising the steps of:

placing a first portion of an elongate conductor within a channel of the adaptor, the first portion of the conductor extending from a one of the lead body first portion and the lead body second portion and the channel of the adaptor extending from the proximal end of the adaptor to a distal end of the adaptor; and

placing a second portion of the conductor within a lumen of another of the lead body first portion and the lead body second portion, the second portion of the conductor extending from the first portion of the conductor.

33. The method of claim 31, wherein the adaptor comprises a first part including the proximal end and a second part including a distal end and further comprising the steps of:

mounting the sensor capsule between the proximal end and the distal end of the adaptor after coupling the sensor bus; and

coupling the first part of the adaptor to the second part of the adaptor after mounting the sensor capsule.